

REMARKS/ARGUMENTS

Claims 1-12 and 14-17 are pending.

Claims 1-11 have been amended.

Claim 13 has been cancelled.

Claims 14-17 have been added.

Support for the amendments is found in the claims and specification (e.g., page 17 and 3-11), as originally filed. Specifically, claims 1 comprises the limitation of claim 13 which has been cancelled. Claims 14-17 comprise the limitations of claims 2 and 9-11. The claims further have been amended to improve readability. No new matter is believed to have been added.

Claims 1, 3, 4, and 6-13 are rejected under 35 U.S.C. 103(a) over Takehana, US 6,526,988. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) over Takehana and Sakakibara, US 5,958,393. The rejections are traversed because:

(1) the cited references alone or in combination do not describe or suggest

a) adhering a permanent treatment liquid down to a position adjacent to the hair root, thereby permeating a permanent treatment liquid into the hair root, after shampooing the hair to remove a hair dressing and the oil contents, and

b) pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, wherein the treatment liquid is adhered to the whole hair including the hair root and permeates the root.

(2) One would not have been motivated to treat the hair root with the permanent treatment liquid so that the liquid penetrates the root based on the disclosure of the cited references because it is known from commercial treatments that when the permanent treatment liquid is adhered onto a portion which is close to the hair root, the hair might be cut off upon pulling.

(3) One would not have reasonably expected that in the Takehana method newly grown hair (after the permanent treatment) has also a straight shape.

(4) One would not have been motivated to combine a permanent treatment of Takehana with the powder treatment of Sakakibara because the Sakakibara powder is applied on the rolled hair for providing a permanent wave, wherein the powder forms a film that prevents the perm solution from dripping, while the permanent treatment of Takehana makes the hair straight by treating the hair with the perm solution and extending the treated hair by ironing and, therefore, forming a film on the hair that is ironed to become straight to hold the perm solution from dropping does not seem to be possible.

(5) One would not have reasonably expected that applying the Sakakibara powder to the Takehana hair that was being straightened would have *stopped* the shaping to a straight shape temporarily because Sakakibara describes that the powder fixes the perm solution by a formed film and the hair is kept at this stage (on the rolls covered with the film) for some time while the treatment is *proceeding* to set the hair in permanent curls (col. 5, lines 1-9).

The claimed permanent treatment method, comprises permeating comprising adhering a permanent treatment liquid comprising thioglycolic acid, down to a position adjacent to the hair root of hair that has been shampooed and from which a hair dressing and the oil contents have been removed, thereby permeating the permanent treatment liquid into the hair root; and shaping comprising pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, to which the permanent treatment liquid has been adhered, to a predetermined temperature, thereby shaping the hair to straight hair.

The claimed method further comprises, between the permeating and shaping, sprinkling a treatment powder that adsorbs the permanent treatment liquid, onto the hair to transfer the treatment liquid from the hair to the treatment powder, thereby absorbing the

permanent treatment liquid and stopping the shaping temporarily. The hair can be also vibrated during the treatment and/or shaping.

The cited references do not disclose the following limitations A) and B):

A) adhering a permanent treatment liquid down to a position adjacent to the hair root of hair, thereby permeating a permanent treatment liquid into the hair root, after shampooing the hair to remove a hair dressing and the oil contents, and

B) pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, in such a state that the treatment liquid is adhered to the whole hair including the hair root and permeates the root.

The Examiner has agreed that Takehana does not disclose that “adhering a permanent treatment liquid down to a position adjacent to the hair root of hair.” However, the Examiner is of the opinion that treating the root of the hair during the permanent treating to achieve straight hair is obvious (page 3 of the OA). Applicants respectfully disagree.

The claimed method treats hair so that a straight-hair state is maintained for a long time. Moreover, the new hair which extend after the permanent treatment also grow in a straight-hair state, as described in the following paragraphs:

“In accordance with the permanent treatment method of the present invention, hair, which has extended anew since the permanent treatment, turns into a straight-hair state. The reason has not been clear yet, however, it is believed to result from the following actions. A cross-sectional view for schematically illustrating a hair-root portion in curly hair is shown in Fig. 1.

Among hair 1, a hair root 3 is a portion, which is positioned in a hair follicle 2, a part of which is completed by being constituted of a scalp 4. In curly hair, it has been known that this hair root 3 is curved as an arc shape. When adhering a permanent treatment liquid onto a portion adjacent to the hair root 3 among this hair 1, the permanent treatment liquid permeates into the hair root 3 within the hair follicle 2. When the permanent treatment liquid permeates into the hair root 3, since thioglycolic acid, which is included in the permanent treatment liquid, acts to the hair root 3, the elasticity of the hair root 3 becomes small, and additionally flexibility is given to the hair root 3.

In this state, as shown in Fig. 2, by pulling the hair 1 while warming it, the hair 1 is shaped to a straight-hair shape as shown in Fig. 3. And, by shaping the hair

1 to a straight-hair shape, it is believed that the hair 3 too is shaped to a straight configuration.

Here, among the hair root 3, a hair base end 5 is a part, which contacts with a hair papilla 6, the bottom of the hair follicle 2, the elongation of the hair 1 occurs because of the fact that the cell division occurs here. Therefore, since the hair base end 5 receives a certain action because of the fact that the hair root 3 is shaped to a straight configuration, it is believed that the **hair 1, which extends after the permanent treatment, turns into a straight-hair shape.**" (emphases added) Paragraphs [0023]-[0026].

Thus, the claimed method provides:

1) In the permeating, the permanent treatment liquid is adhered down to the position adjacent to the hair root of hair, thus, the treatment liquid hardly pools around an entry of hair follicle (because there are no hair dressing, oil contents, etc.), and the treatment liquid transmits through the hair, and goes deep into the hair follicle so that it permeates into the hair papilla of the hair to permeate the whole hair root (e.g., Figures 1-3).

2) Since the hair is pulled with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, in such a state that the treatment liquid is adhered to the whole hair including the hair root and permeates the treatment liquid in the shaping step, the hair root is shaped to a straight shape and hair which has extended anew since the permanent treatment, is also turned into a straight-hair state, the effect of permanent treatment is maintained for a long time (e.g., Figures 1-3).

Namely, the present invention exhibits a remarkable effect that the hair which has extended anew is also turned into a straight-hair state and the effect of permanent treatment is maintained for a long time.

The present specification describes that

"[I]n the conventional permanent treatment methods, the permanent treatment liquid is adhered onto the portions alone, which are separated from the hair root, among the hair. It is because of the fact that, in the permanent treatment method for shaping hair to straight hair, since external forces, such as pulling and compressing, are applied to the hair, there is a fear that the hair might be cut off upon pulling if the

permanent treatment liquid is adhered onto a portion, which is close to the hair root among the hair, to make the elasticity of this portion small.

Therefore, in the conventional permanent methods, the permanent treatment liquid does not permeate down to the hair root, and accordingly hair, which has extended anew since the permanent treatment, has been still kept to be as curly hair. In the permanent treatment method of the present invention, because of the fact that the permanent treatment liquid is permeated down to the hair root and the hair is pulled while warming it, it is possible to turn the hair, which extends after the permanent treatment, into a straight-hair shape, as described above.” (emphases added) Paragraphs [0027]-[0028].

In the Comparative Example on pages 19-22 of the present specification describing a conventional permanent treatment method, the roots have not been treated with the permanent liquid. As a result, the hair-shaft portions were shaped to straight hair, but the portions, which had extended anew since then, were still kept to be curly hair. In Examples 1-2 on pages 22-27 in which the hair roots has been treated, the hair-root portions were shaped to straight hair and, additionally, the portions which had extended anew after the treatment turn into straight hair.

Thus, the claimed method provides an unexpected result and the claimed method cannot be obtained based on the cited references.

In addition, Takehana describing conventional methods teaches away from treating roots with the perm solution because when the root treated hair is pulled, the hair might be cut off.

Further, the cited references do not set a goal of growing new hair also having a straight shape after the treatment. Thus, the cited references do not recognize that a problem of growing new straight hair after the treatment needs to be solved. Thus, treating the roots is not routine. Specifically, for optimizing the perm application to the hair and the pulling force, the prior art must first recognize a particular parameter as a result-effect variable, i.e., that growing anew straight hair after the perm treatment is a function of the root treatment with the perm solution and the pulling force during shaping (*see* page 19 of the present

specification). MPEP 2144.05. II, *e.g.*, *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). The cited references do not recognize such as dependency.

Further, when adhering a treatment liquid down to a position adjacent to the hair root, the treatment liquid pools around an entry of hair follicle and elasticity of hair around the entry of hair follicle becomes partially small and cut-off hair is likely to occur. Therefore, “adhering a treatment liquid down to a position adjacent to the hair root and pulling the hair to shape it to straight hair” has been considered to date as a taboo. The permanent treatment method according to the present invention is counterintuitive because the claimed method comprises “adhering a treatment liquid down to a position adjacent to the hair root and pulling the hair to be straight” considered to date as a taboo, and, therefore, the claimed method is not obvious.

Thus, one would not have been motivated to treat the hair root with the permanent treatment liquid so that the liquid penetrates the root based on the disclosure of the cited references because it is known from commercial treatments that when the permanent treatment liquid is adhered onto a portion which is close to the hair root, the hair might be cut off upon pulling.

One would not have reasonably expected that in the Takehana method newly grown hair (after the permanent treatment) has also a straight shape because treating roots was avoided in commercial treatments.

Next, a pulling force of  $0.5 \text{ kg/cm}^2$  or more is used because a pulling force of less than  $0.5 \text{ kg/cm}^2$  is too weak to shape the hair root to a straight shape (*e.g.*, paragraph [0066]).

The Examiner has alleged that Takehana describes “pulling the hair while warming the hair.” Applicants respectfully disagree.

Takehana only discloses that the hair is treated with a hair iron to be straight which does not necessarily involve pulling the hair, not to mention with the claimed force of 0.5 kg/cm<sup>2</sup> or more.

The Examiner has also alleged that it would have been obvious to use the powder of Sakakibara in the method of Takehana. Applicants respectfully disagree.

One would not have been motivated to combine a permanent treatment of Takehana with the powder treatment of Sakakibara because the Sakakibara powder is applied on the rolled hair for providing a permanent wave, wherein the powder forms a film that prevents the perm solution from dropping, while the permanent treatment of Takehana makes the hair straight by treating the hair with the perm solution and straightening the treated hair by ironing and, therefore, fixing the hair (as in Sakakibara) that is ironed to make the hair straight (as in Takehana) does not seem to be possible.

Moreover, one would not have reasonably expected that applying the Sakakibara powder to the Takehana hair that was being straightened would have *stopped* the shaping to a straight shape temporarily (as in claim 1) because Sakakibara describes that the powder fixes the perm solution by forming a film and the hair is kept at this stage (on the rolls covered with the film) for some time while the treatment is *proceeding* to set the hair in permanent curls (col. 5, lines 1-9).

Thus, Takehana and/or Sakakibara do not make the claimed method obvious. Applicants request that the rejection be withdrawn.

The rejection of claim 13 under 35 U.S.C. 112, second paragraph, is not applicable to the claims filed herewith because claim 13 has been cancelled. Applicants request that the rejection be withdrawn.

A Notice of Allowance for all pending claims is requested.

Respectfully submitted,

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